

# Development of Teacher Competence Guidance Model Based on Scientific Approach

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**Abstract**—Developments of teachers are continuously attempted to fulfil the need for competencies so that they can be acknowledged in 21st-century life. However, the implementation of education has not been optimal. The purpose of this study is to develop teacher competence guidance model based on scientific approach. Its method is Research and Development. The research procedure includes the Preliminary Study, Model Development, and Model Test. Data collection technique uses observation, documentation, questionnaires, portfolios, and interviews. The data analysis technique uses descriptive statistics. The results of the study can be used as an alternative solution to the problem of weak teacher competencies. The research findings show that teacher competence development is administrative, face-to-face meetings between supervisors and teachers have not run optimally, and teacher commitment levels tend to be low. Through the Research and Development method, it is expected to benefit the user community and can improve the quality of education.

**Keywords:** *scientific approach, teacher competence guidance*

## I. INTRODUCTION

Education in Indonesia is required to be able to produce human resources that master science, technology and noble character. National education has a vision: "The realization of the education system as a strong and authoritative social institution to empower all citizens of Indonesia to develop into quality human beings so that they can be proactive, answering the challenges of an ever-changing era". The realization of the vision of national education is described in its mission, among others: "Increasing the professionalism of accountability of educational institutions as a center of civilization of science, skills, experience, attitudes, and values based on national and global standards". In accordance with the national education system law, one of the strategies for implementing national education is to increase the professionalism of educators and education staff. Teachers as educators in schools are special professions. It is not enough if the teaching profession

is simply categorized as a type of "work" where they work to be paid and then finished. Educator profession has a mission, service, and even worship that has more value than other professional positions. Educators/teachers are required to take part in a sustainable professional development program that is oriented towards fostering competence standards directed at developing competencies to meet quality learning services. [1] Nurhamzah (2016) provides information about the results of his research that the management of principals, teacher professional competencies, and the learning environment have a positive and significant influence on teacher performance to improve the quality of madrasah.

In order that the functions and tasks inherent in the teacher's functional position to be carried out according to the rules, it requires guidance and performance evaluation. The function of guidance is to maintain work morale and personnel commitment to the organization by prioritizing a humanist approach and providing stimulus, so that teachers have high dedication to always improve themselves. The steps of pedagogical content related to the didactic field (arranging lesson plans) show the effect of increasing knowledge both for each individual and at the program level, while teaching practice steps related to opportunities in school to learn have an effect only on individual future teachers [2] König (2017) Teacher guidance can be pursued through a system that called teacher professional guidance. Professional guidance system is a system of guidance given to teachers by emphasizing professional service assistance based on teacher needs in the field through various professional institutions in order to improve education quality. Efforts to continuously develop teacher competence need to be done because problems faced by the Indonesian people is the low quality of education and one of the factors considered to be the cause is the teacher. Various efforts have been made to improve the quality of education, but the fact shows that the implementation of education

has not been able to become a means to improve the quality of human resources as stated in the national education system law.

The results of the initial competence test of teacher professionalism show that the average score is below 50. The results of the national teacher competence test score 53.02 (Kompas, November 14, 2018). Authors survey results on May 15, 2018, in Tegal Barat elementary school teachers in Tegal city about teacher competence in the implementation of the national curriculum are already understand 38%, rather understand 32%, do not understand 30%. In facing the 21st century, it is necessary to prepare well, the concepts and applications, to form superior human resources. The most responsible in preparing superior human resources are educational institutions where the teachers are the most dominant element and determine the success of students. One of the characteristics of teacher competence in 21st century is being able to utilize various innovations in ICT. The success of an education is influenced by factors of educator (50%), curriculum (20%), facilities and infrastructure (20%), students (10%). The Teachers and Lecturers Law Chapter IV Article 10 (1) mandates that teachers must have pedagogical, personal, social, and professional competencies. Research [3] Hakim (2015) proved, the contribution of all teacher competencies as mentioned in the law simultaneously had a significant influence on improving teacher performance. Furthermore, professional and pedagogic competence has the most positive effect on teacher performance [4] Rahman (2014).

This study is related to supervisory management functions in the form of supervision (professional services to improve teacher competence). The challenges that is faced by principals in the tasks of institutional governance, resource input, curriculum, delivery and student learning require effective collaboration and goal-oriented synergetic interrelations between schools and relevant stakeholders' management [5] Joshua (2012). The results of the study [6] Rahardjo (2014) stated that work environment have a significant effect on motivation; leadership and work environment significantly influence performance; the work environment has a significant effect on motivation and the influence of performance as an embodiment of teacher competence. Results of interviews with education supervisors in Tegal City (Lestari, 2019), supervision techniques carried out by school principals only brought changes shortly after

supervision, then the teacher's performance returned to previous situation. According to [7] Mirzagitofa (2015), the conditions needed to motivate developing pedagogical competencies related to student development are very much needed. In addition, the main conditions for the formation of pedagogical competencies that teachers have also need to be considered.

The teacher competence guidance model designed in this study is based on previous research, factual conditions, and scientific approaches. The essence of the scientific approach is believed to be the golden mark of the development of knowledge, skills and attitudes. [8] Dyers (Kemendikbud, 2013) explained that two-thirds of one's creativity ability was obtained through education and the remaining third came from genetics. The opposite applies to intelligence; one-third of education, two-thirds of genetics. The ability of creativity is obtained through observing, questioning, experimenting, associating, and networking. Furthermore, Dyers said that intelligence-based learning will not give significant results (an increase of only 50%) compared to creativity-based learning (can reach 200%). The steps of the scientific approach can touch the three realms of education, namely attitudes, knowledge, and skills. The attitude domain takes the transformation of substance "to know why". The realm of skills takes on the transformation of the substance "to know how". The realm of knowledge takes on the transformation of the substance "to know what".

Based on this explanation, it is a quite strong reason to conduct a study of the teacher competence development model based on the scientific approach,. This is considered important because the high and low level of teacher competence has a direct impact on the quality of educational processes and outcomes which in turn affects the achievement of the education vision and mission. The objectives of this study are: (1) Analyzing the conditions of teacher competence development that take place in Tegal elementary school (2) Analyzing the development of teacher competence development models based on scientific approaches (3) Analyzing hypothetical models of teacher competence development that can improve teacher performance of Tegal city elementary school as an embodiment of the competencies possessed.

## II. RESEARCH METHODS

The design of this study uses research and development which aims to develop a model of conventional guidance into a model of guidance

based on the scientific approach. Work procedures are taken through stages: (1) Preliminary Study (2) Study of Model Development (3) Evaluation

**Preliminary study:** (a) The literature study, examines sources related to the development of teacher competence guidance models based on scientific approaches and teacher performance, (b) Study of research results, through the assessment of previous research results, (c) Field studies (pre-survey) of principals as supervisors ( research subject).

**Model Development Study:** (a) Arrange questionnaire instruments, observation sheets, documentation, interviews, and portfolios, (b) Arrange draft model and device to get approval from experts, followed by the application of limited trials and revisions to overcome the shortcomings. After the design of the new product is stated to be more efficient than the old product, then it is then tested more broadly.

**The Evaluation Phase** is carried out if in a wider scope of usage there are shortcomings and obstacles, so it needs to be evaluated and revised for further improvement. After testing the product declared effective in several tests, it can be applied to any educational institution as a mass product.

Calculation of descriptive analysis of variables is done by index analysis. After the range is known, it can be used as a basis for interpreting index values with the following criteria.

**Table 1.** Index Value Criteria

Average percentage	Category
25,00 – 50,00	Low
50,01 – 75,00	Moderate
75,01 – 100,00	High

Research data collection techniques are linked to needs based on the research stages: (a) pre-survey, at this stage questionnaire instruments, were developed for both the principal, and for teachers, observation, interviews and documentation as initial data/initial model prototype; (b) model development stage in a limited trial a teacher competence development instrument was developed based on a scientific approach, (c) the stage of developing a broad trial after the instrument for developing the teacher competence development model based on the scientific approach is declared valid by experts.

**III. RESEARCH RESULTS AND DISCUSSION**

Based on the results of observations and interviews about teacher competence development by the principal, the implementation can be explained in several stages. First, the pre-survey stage. The principal's job is to help teachers improve their competence through collaborative and educational supervision. Some notes on the problems of developing the elementary school teacher competence in Tegal city include: (1) In the implementation of supervision, supervisors only conduct evaluations, give instructions, and do not touch the problems perceived by the teacher; (2) The principal does not have a clear guidance program, activities only control the learning design and media, while the implements have not been monitored effectively; (3) Feedback on the results of administrative guidance; (4) The teacher has a low level of commitment and poorly directed performance. The elementary teacher competence test results are low: 38% pedagogical competence, 48% personality, 35.33% professional, and 43.60% social. The results of preliminary research on the competence of elementary school teachers in the West Tegal region of Tegal City are relatively low (average score of 38). The solution to overcome the problem starts from building mentors' mentality. Before the principal builds teachers, mental reinforcement is given to be a superior human resource who always remembers God while working, because in essence work is a mandate, also reminded of the qualities that must be possessed by a coach. Subsequently, refresher material is presented about: technical, managerial and human skills. The results of observations on the factual model, principals as supervisors generally have not implemented teacher competence guidance such as the results of the research [9] Rifma (2014, 128

Based on the factual teacher competence guidance model, a teacher competence guidance model based on a scientific approach was developed with stages: Observing/Questioning, Gathering Information, Processing Information (Developing Guidance Programs), Communicating (Implementation, Monitoring and Evaluation of Guidance). Observation and interviews are conducted to obtain data, among others, about the strengths and weaknesses of teachers in the academic field. The results of observations, questionnaires and interviews were analyzed and used as a reference in determining the actions of teacher competence development. Before the implementation of the training, the principal prepared several things, including

infrastructure, establish the techniques used, holding meetings with teachers to create an intimate atmosphere, preparing class visit instruments, hold feedback meetings, and determine follow-up to correct weaknesses. To find out success, the supervisor evaluates the process and results. Evaluation results are used as material for the next

guidance program. Monitoring is carried out by using a guidance book that must be filled by the teacher, among others about the success that has been achieved and the problems encountered during carrying out the improvements. Format of teacher competency guidance book as in the following table.

Table 2. Format of Teacher Competency Guidance Book

No	Problems encountered	Solution to be done	Result	Recommendation for Improvement	Information
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The results of the study of [10] Shukla (2014) show that professionalism possessed by teachers is highly correlated with job satisfaction, teachers who are satisfied with their work will have a high work commitment, both of them have a significant relationship. Teachers who are happy with work and work environment, will provide the best in fulfilling their professional duties. Academic

supervision programs by principals are based on teacher needs, improve learning situations, curriculum development and evaluation. Supervision used are individual, namely class visits, class observations, private conversations, and groups. Follow-up results supervision is learning workshops in teacher work group activities.

Table 3. Examples of Filling Worksheets of Teacher Competence Guidance Model Based on Scientific Approach

Sintak Model Cooperative	Observing	Asking	Collecting information	Processing Information	Communicating
Identificat ion of Pedagogic Competencies	Teacher competence of learning management (designing, implementing, evaluating, and determining follow-up)	Teacher's understanding of the insights/ educational foundation and students' characteristics	Summarizes the competencies of teachers who have problems	Analyzing the observatio ns scores before guidance	The supervisor and teachers discuss the weaknesses faced by the teacher, then choose the most important ones to be corrected immediately and determine solutions together

**IV. CONCLUSION**

The main target of education leadership is how teachers under the leadership of the school principal can manage learning well. The model of teacher competence guidance through supervision that is already underway is a pattern that principals have as generally conventional supervisors. The conventional model is characterized by patterns of authoritarian and feudal formation. Supervision behaviour carried out is to conduct inspections to find fault and find flaws. The principal as supervisor must have a number of competencies in accordance with Minister of Education Regulation No. 13 of 2007, namely: (1) Planning an academic supervision program in order to increase teacher professionalism;

(2) Carry out academic supervision of teachers using appropriate supervision approaches and techniques; (3) Following up on academic supervision of teachers in order to increase teacher professionalism. The design of guidance actions for improvement/enhancement of teacher competencies is carried out collaboratively by involving elements of teachers, principals, and researchers so that there is a full spiritual harmony and has the same perception of the efforts that will be made. The guidance program arrangement includes competence aspects to be fostered, goals to be achieved, an indicator of success, selected guidance techniques, activity scenario, resources to be used, assessment and follow-up of guidance results. The teacher competence guidance model based on the scientific

approach, in addition to being in accordance with the National Education Minister Regulation, also has increased achievement compared to the factual model so that it can be concluded that teacher competence guidance based on the scientific approach by the principal gives a significant influence on teacher performance as an embodiment of competence. It can be stated that the teacher competence guidance model based on the scientific approach is effective and feasible to be used to improve the competence of elementary school teachers in Tegal city, and then the results of increasing teacher competence also influences scientific-based learning managed by teachers for students.

The difficulties faced by teachers while applying a scientific approach are student problems, time allotment, and teaching management. The scientific approach applied successfully develops critical thinking and fosters high thinking behavior. [11] Nugraha and Suherdi (2017) stated if the teacher has the competence of knowledge, skills, and attitudes reflected in the habit of thinking and acting, the teacher's performance is ideally optimal, because teacher performance is the behavior shown by the teacher in carrying out his professional duties as a manifestation of competence owned, and this is called professionalism as a level of quality or ability that the teacher has in carrying out his professional duties.

#### V. RECOMMENDATION

To improve teacher competence, implementing effective supervision is the expected solution. It is recommended that supervisors establish a harmonious relationship with teachers and teachers should have a positive view of teacher competence guidance. If the guidance of teacher competencies through supervision is taken into account, and truly implemented by competent supervisors, then each school will gradually progress and develop to achieve the goal of quality education. The technique of fostering/supervising teachers can use a direct, indirect, or collaborative approach, in line with the teacher competence guidance model based on a scientific approach, through observing, asking questions, gathering information, processing information, and communicating. The strategy that can be carried out according to the results of the research is bottom-up; creativity improves from the teacher itself. The results of the study of [12] Fahmi (2018) recommend that supervisors visit teachers once a month to share information regarding new teaching methods to get more productive supervision

which in turn will lead to the achievement of educational goals.

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